CHAPTER 9

RIGGING M151A2, 1/4-TON TRUCKS AND TOW WEAPON SYSTEM ON THE TYPE V AIRDROP PLATFORM FOR LOW-VELOCITY AIRDROP

Section I

RIGGING M151A2, 1/4-TON TRUCK (FIRING VEHICLE) WITH MOUNTED TOW WEAPON SYSTEM

9-1. Description of Load

The M151A2, 1/4-ton utility truck (firing vehicle), with the mounted TOW weapon system and two missiles in overpacks, is rigged on a 12-foot, type V airdrop platform. It is rigged with two G-11A cargo parachutes or one G-11B cargo parachute. This load can be airdropped from a C-130 or a C-141 aircraft.

9-2. Preparing Platform

Prepare a 12-foot, type V airdrop platform as described below.

a. Assembling and Inspecting Platform. Inspect, or assemble and inspect, the platform as outlined in TM10-1670-268-20&P/TO13C7-52-22.

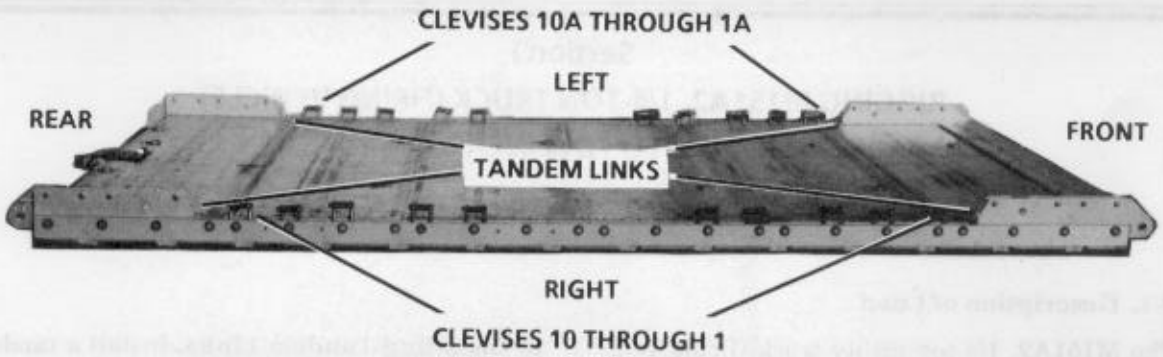
b. Installing Tandem Links. Install a tandem link on the front and rear of each rail as shown in Figure 9-1.

c. Attaching and Numbering Clevises. Bolt 20 tiedown clevises to the side rail bushings according to TM 10-1670-268-20&P/TO 13C7-52-22. Number the clevises as shown in Figure 9-1.

NOTES:

1. The nose bumper may or may not be installed.

2. Measurements given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.



Step:

1. Starting at bushing 1 behind each front tandem link, attach a clevis to bushings 2, 3, 4, 6, 7, 12, 13, 15, 16, and 17.
2. Starting at the front of the platform, number the clevises bolted to the right rail 1 through 10 and those bolted to the left rail 1A through 10A.

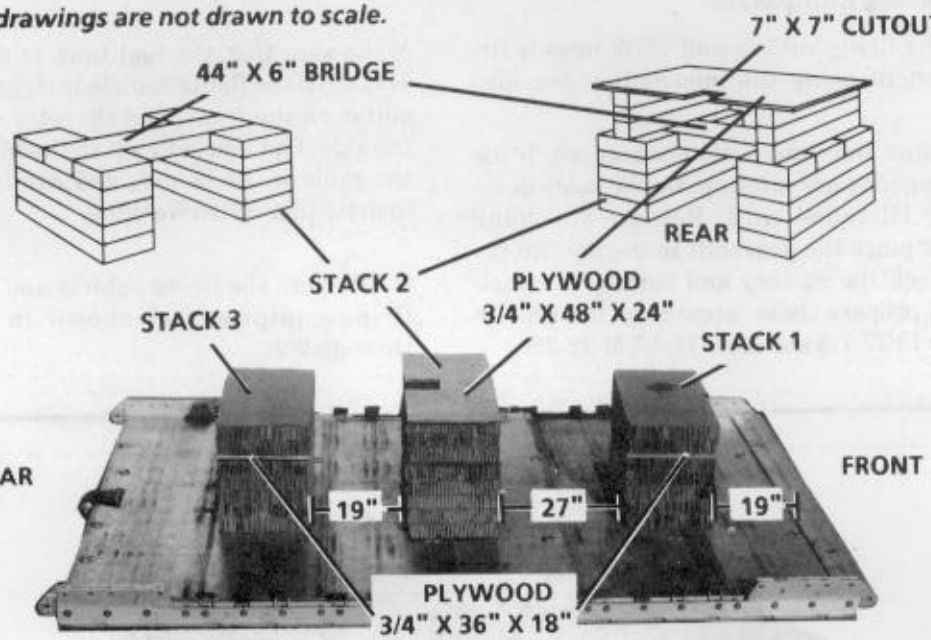
NOTE: The suspension clevises will be attached to the tandem links later.

Figure 9-1. Platform prepared

9-3. Building and Placing Honeycomb Stacks

Build the honeycomb stacks and place them on the platform as shown in Figure 9-2.

NOTE: The drawings are not drawn to scale.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
1	7	36	18	Honeycomb	Center honeycomb on the platform 19 inches from the front edge.
	1	36	18	3/4-inch plywood	Place plywood under the second layer of honeycomb from the top.
2	8	12	18	Honeycomb	Place four pieces of honeycomb on each side of the platform an equal distance from the side rail and 27 inches from stack 1.
	1	44	6	Honeycomb	Center honeycomb over the side stacks as a bridge.
	4	12	6	Honeycomb	Place one piece of honeycomb to each side of the side stacks on each side of the bridge.
	6	6	18	Honeycomb	Center three pieces of honeycomb on each side of the stack.
	1	48	24	3/4-inch plywood	Place plywood on top of stack with a 7- by 7-inch cutout centered on the rear.
3	7	36	18	Honeycomb	Center honeycomb on the platform 19 inches from stack 2.
	1	36	18	3/4-inch plywood	Place plywood under the second layer of honeycomb from the top.

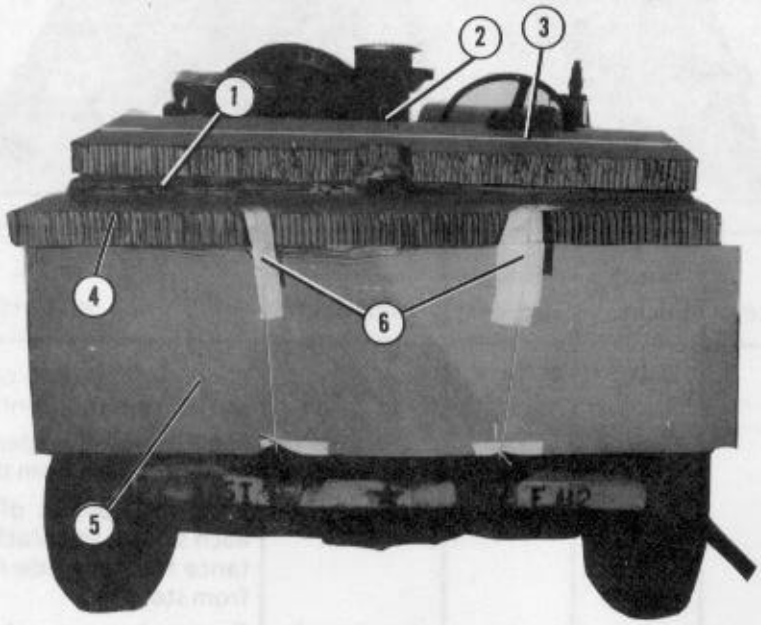
Figure 9-2. Honeycomb stacks prepared and positioned

9-4. Preparing Firing Vehicle and TOW Missile Firing Equipment

Prepare the firing vehicle and TOW missile firing equipment using the information provided below.

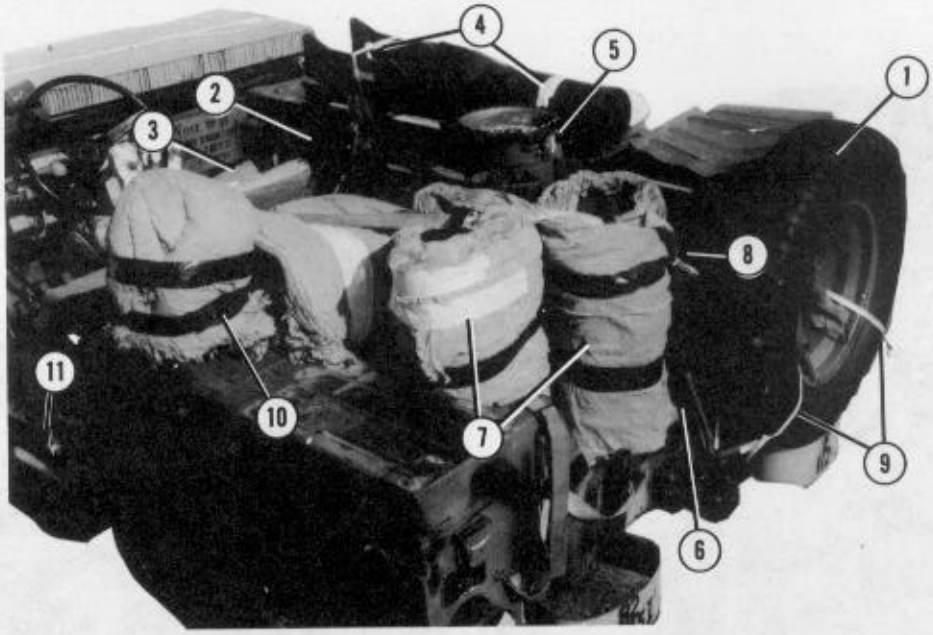
a. Make sure the front seats are secured. If the seat locking pins are missing, tie the seats down with type III nylon cord. Release the hand brake, and place the gearshift in the neutral position. Check the battery and battery compartment, and prepare them according to FM 10-500-2/TO 13C7-1-5 and AFR 71-4/TM 38-250. Make sure that the fuel tank is not more than 1/2 full. If the firing vehicle is rigged with a wire cutter on the front, fold the wire cutter over to the side. Pad and safety it to the bumper. Mount the radio in its holder, and safety it with 1/2-inch tubular nylon webbing.

b. Prepare the firing vehicle and TOW missile firing equipment as shown in Figures 9-3 through 9-9.



1. Lower the windshield onto a 2-inch-thick pad of cellulose wadding. Secure it with hold-down straps.
2. Place a 24- by 61-inch piece of honeycomb on top of the windshield. Cut or crush the honeycomb to fit over the windshield wiper motor.
3. Secure the honeycomb on the windshield with 1/2-inch tubular nylon webbing. Tie the webbing to the truck frame on each side.
4. Place a 17- by 61-inch piece of honeycomb on the hood. Crush the honeycomb to fit over the hold-down straps and blackout headlight.
5. Place a 19- by 61-inch piece of honeycomb on the bumper against the brush guard.
6. Secure the honeycomb to the hood and bumper with type III nylon cord. Tie the cord to the windshield brackets and lifting shackles. Tape the honeycomb edges where the type III nylon cord touches.

Figure 9-3. Windshield, hood, and bumper secured



(1) Remove the spare wheel from the side mount, and bolt it to the rear mount.

(2) Fold the tripod, and place it on the truck floor under the missile rack.Safety the tripod in place with type III nylon cord.

(3) Safety the day-night sight to the passenger floor and any extra parts behind the seat with 1/2-inch tubular nylon webbing.

(4) Place the launch tube on the inside missile rack, and secure it with the straps provided and 1/2-inch tubular nylon webbing.

(5) Remove the optical sight and traversing unit. Close the ground coupling, and tape the locking handle in the closed position.

(6) Place a 14- by 21-inch piece of honeycomb and a 12- by 12-inch piece of honeycomb on the truck floor to the rear of the driver's seat.

(7) Fill a gasoline can to 1 inch below the bottom of the filler neck threads. Fill a 5-gallon water can. Pad the cans with cellulose wadding. Place the padded cans on the honeycomb.

(8) Secure the cans with a tiedown strap passed around the left rear frame of the driver's seat, through the radio mount, and through the handles of the cans. Secure the strap to the right hole in the safety chain bracket with a D-ring and a load binder.

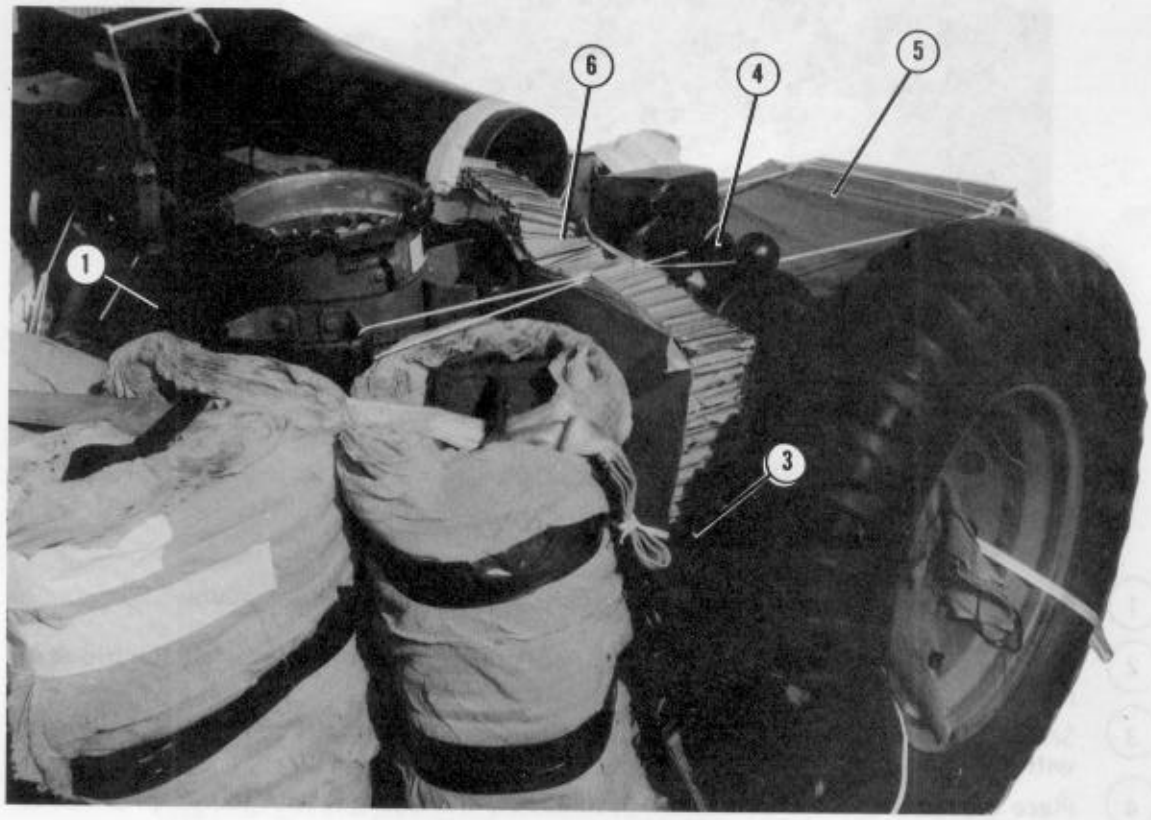
(9) Safety the spare wheel to the truck with two ties of 1/2-inch tubular nylon webbing.

(10) Pad the antenna mount with cellulose wadding, and tape it in place.

(11) Strap the ax in its bracket, and tie it securely with two ties of type III nylon cord.

(12) Pad the side mirror with cellulose wadding. Turn it down against the truck body, and tape it in place (not shown)

Figure 9-4. Rear of truck with 5-gallon cans stowed and TOW weapon system stowed



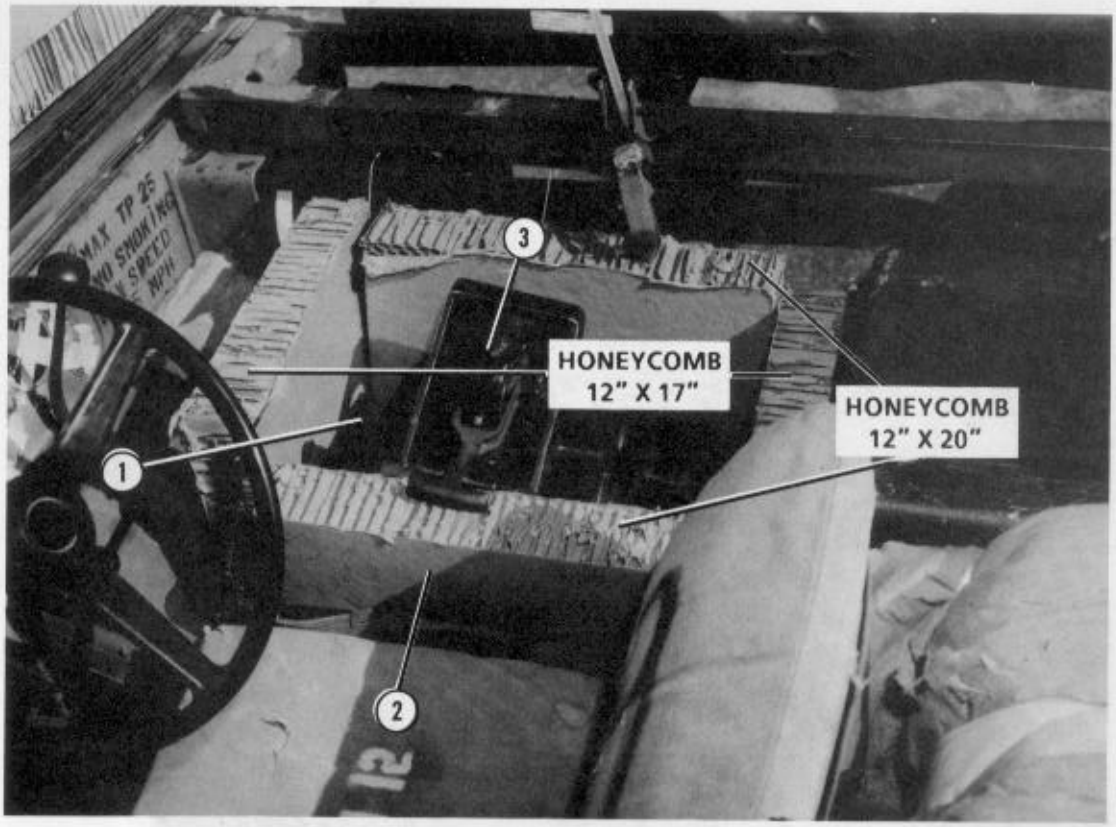
1. Place the missile guidance set in its bracket in front of the pedestal with the handle to the rear of the truck. Secure the missile guidance set with four hold-down straps (one to each corner).
2. Make two ties of doubled type III nylon cord across the guidance set to convenient places on the truck (not shown).
3. Place a 14- by 21-inch piece of honeycomb in the rear of the truck.
4. Pad the traversing unit with cellulose wadding, and tape it in place. Recess the traversing unit base in a 12- by 12-inch piece of honeycomb. Place this honeycomb and the traversing unit base on the 14- by 21-inch honeycomb (step 3) with the locking handle toward the rear.
5. Fold the backrests of the individual seats down, and safety them with type III nylon cord.
6. Wedge the traversing unit in place with a piece of honeycomb of the appropriate size.

Figure 9-5. Guidance set and traversing unit stowed and individual seats safetied

(1) Bend a 14- by 28-inch piece of honeycomb over the traversing unit.

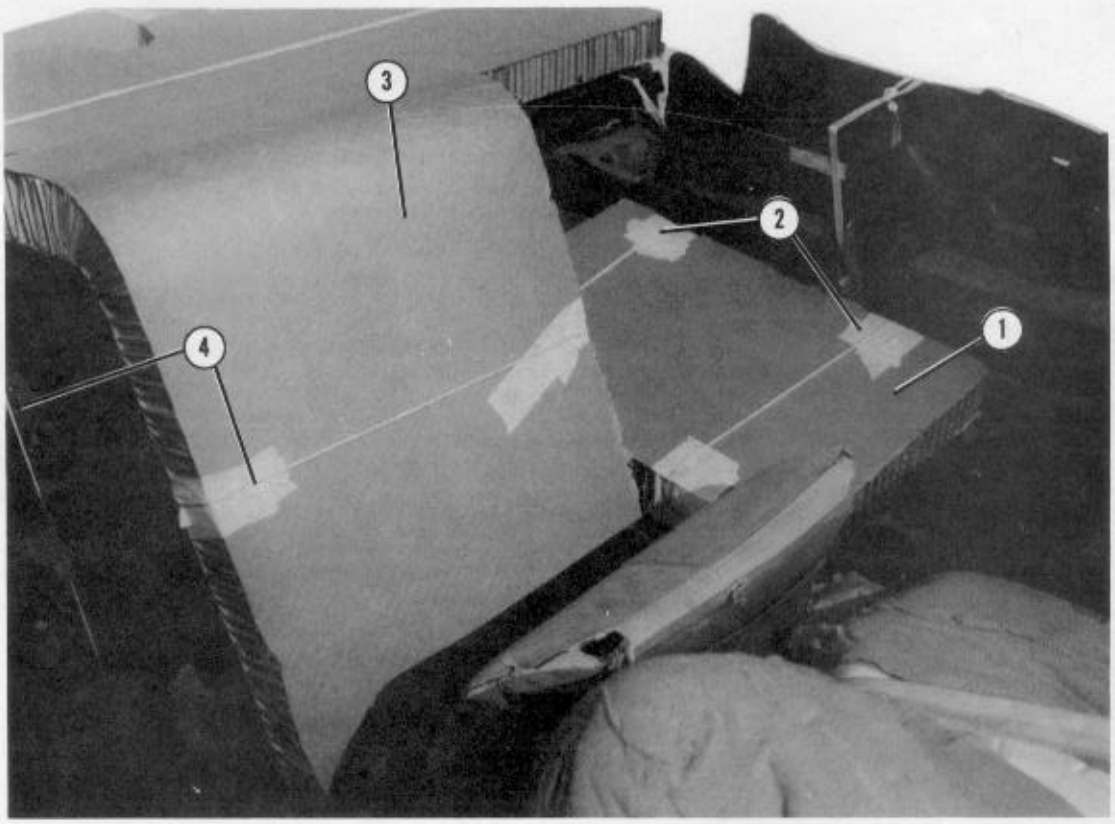
(2) Secure the honeycomb in place with two ties of type III nylon cord. Tape the honeycomb edges where the type III nylon cord touches.

Figure 9-6. Traversing unit protector installed



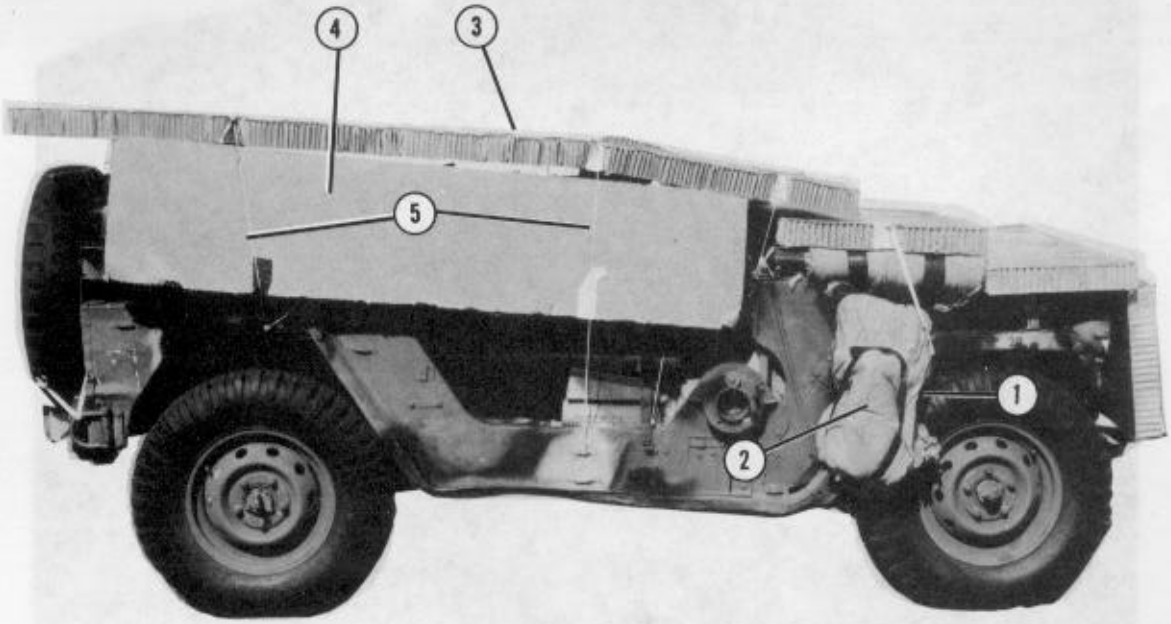
1. Place an 18- by 25-inch piece of honeycomb (with a 6- by 12-inch cutout for the battery box) on the floor of the truck in front of the missile guidance set. Place another 18- by 25-inch piece of honeycomb on top of the first piece.
2. Build an optical sight box using two pieces of 12- by 20-inch honeycomb and two pieces of 12- by 17-inch honeycomb. Hold the box together with tape and type III nylon cord. Place it on the honeycomb positioned in step 1.
3. Lock the guidance set latch assembly, and place the guidance set in the box with the rubber eyepiece in front.

Figure 9-7. Optical sight box made and sight stowed



1. Pack cellulose wadding or scraps of honeycomb around the sight to prevent it from moving. Place an 18- by 25-inch piece of honeycomb on top of the optical sight box.
2. Tie the honeycomb to convenient places on the truck with two ties of type III nylon cord. Tape the honeycomb edges where the type III nylon cord touches.
3. Place a 20- by 54-inch piece of honeycomb (crushed for the windshield wiper motor and cut across the underside to allow bending) over the steering wheel.
4. Secure the steering wheel protector in place with two ties of type III nylon cord. Tape the honeycomb edges where the type III nylon cord touches.

Figure 9-8. Optical sight secured and steering wheel protector installed



1. Strap the shovel in its bracket, and tie it securely with type III nylon cord.
2. Pad the shovel and front fender with cellulose wadding, and tape it in place.
3. Place a 36- by 96-inch piece of honeycomb on the launch tube.
4. Fit a 16- by 71-inch piece of honeycomb on the rear fender and along the side of the truck.
5. Tie the honeycomb to convenient places on the truck with three ties of type III nylon cord. Tape the honeycomb edges where the type III nylon cord touches.

Figure 9-9. TOW weapon system protector installed

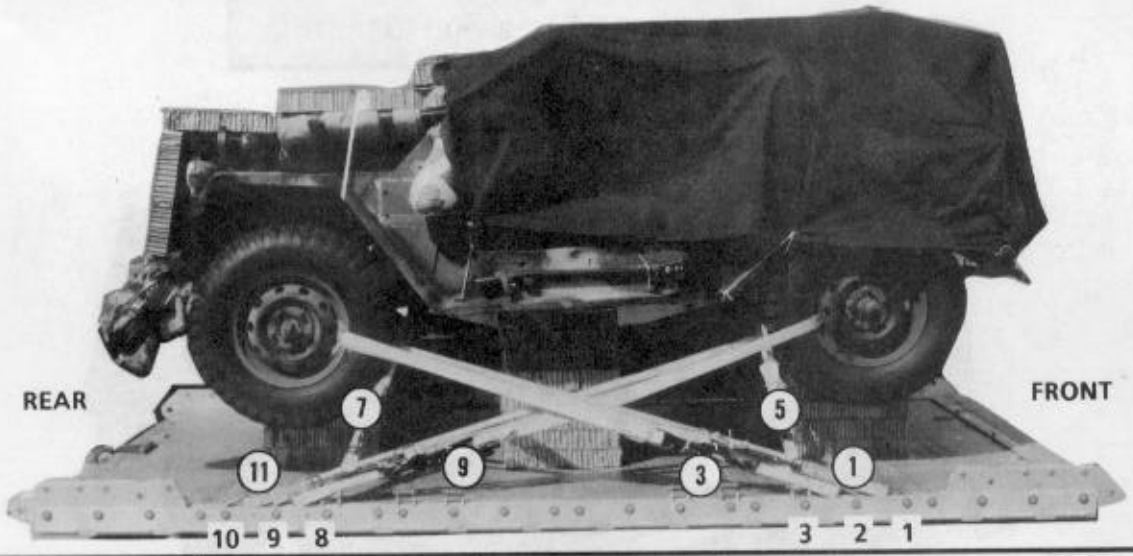
9-5. Positioning Firing Vehicle

Bolt a 9-foot (3-loop), type X nylon sling to each wheel with a load tiedown clevis or a small suspension clevis. Place the firing vehicle on the honeycomb stacks with its rear edge even with the front edge of the platform. Remove the 9-foot slings.

9-6. Lashing Firing Vehicle

Lash the firing vehicle to the platform with twelve 15-foot tiedown assemblies as shown in Figure 9-10.

NOTE: Pad all sharp edges that may touch the lashings.



Lashing Number	Tiedown Clevis Number	Instructions
		Pass lashing:
1	1	Through left front wheel.
2	1A	Through right front wheel.
3	2	Through left front wheel.
4	2A	Through right front wheel.
5	3	Around inner left rear suspension arm.
6	3A	Around inner right rear suspension arm.
7	8	Around inner left front suspension arm.
8	8A	Around inner right front suspension arm.
9	9	Through left rear wheel.
10	9A	Through right rear wheel.
11	10	Through left rear wheel.
12	10A	Through right rear wheel.

Figure 9-10. Lashings installed

9-7. Installing Load Cover and Placing Honeycomb Stacks for Missiles

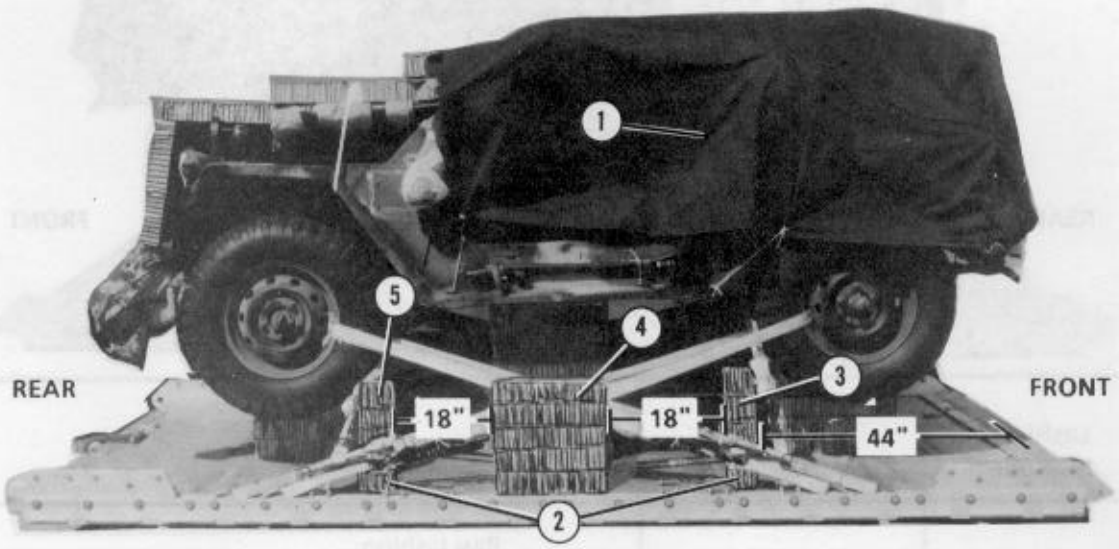
Install the load cover, and place the honeycomb stacks for stowing the missiles.

a. Installing Load Cover. Tie a cover over the load as shown in Figure 9-11.

b. Building and Placing Honeycomb Stacks. Build the honeycomb stacks for the missiles, and place them on the platform as shown in Figure 9-11.

CAUTION

THE LOAD COVER MUST BE PULLED TAUT.

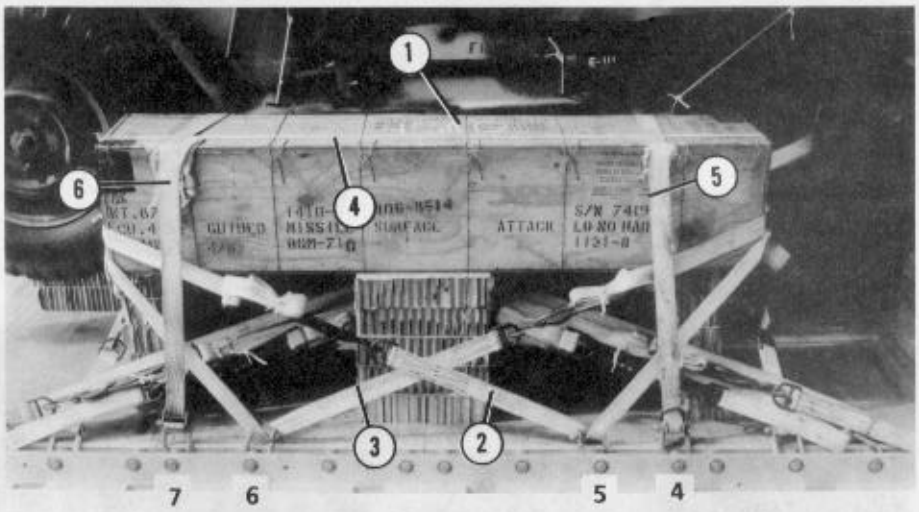


1. Cover the load with a 10- by 10-foot piece of duck cloth. Tie the corners of the cover to convenient places on the truck with type III nylon cord.
2. Use thirty 4- by 12-inch pieces of honeycomb to make six stacks of honeycomb, each stack five layers high. Glue the layers together.
3. Place one of the honeycomb stacks on the platform 44 inches from the front edge of the platform and 6 inches from the right rail.
4. Place a second honeycomb stack on the platform 18 inches from the stack in step 3 and 6 inches from the right rail.
5. Place a third honeycomb stack on the platform 18 inches from the second stack and 6 inches from the right rail.
6. Place the remaining three honeycomb stacks on the left side of the platform as in steps 3, 4, and 5.

Figure 9-11. Load cover installed and honeycomb stacks placed for stowing missiles

9-8. Stowing and Lashing Missiles on Platform

Stow one missile in its box on each side of the platform and lash it as shown in Figure 9-12.

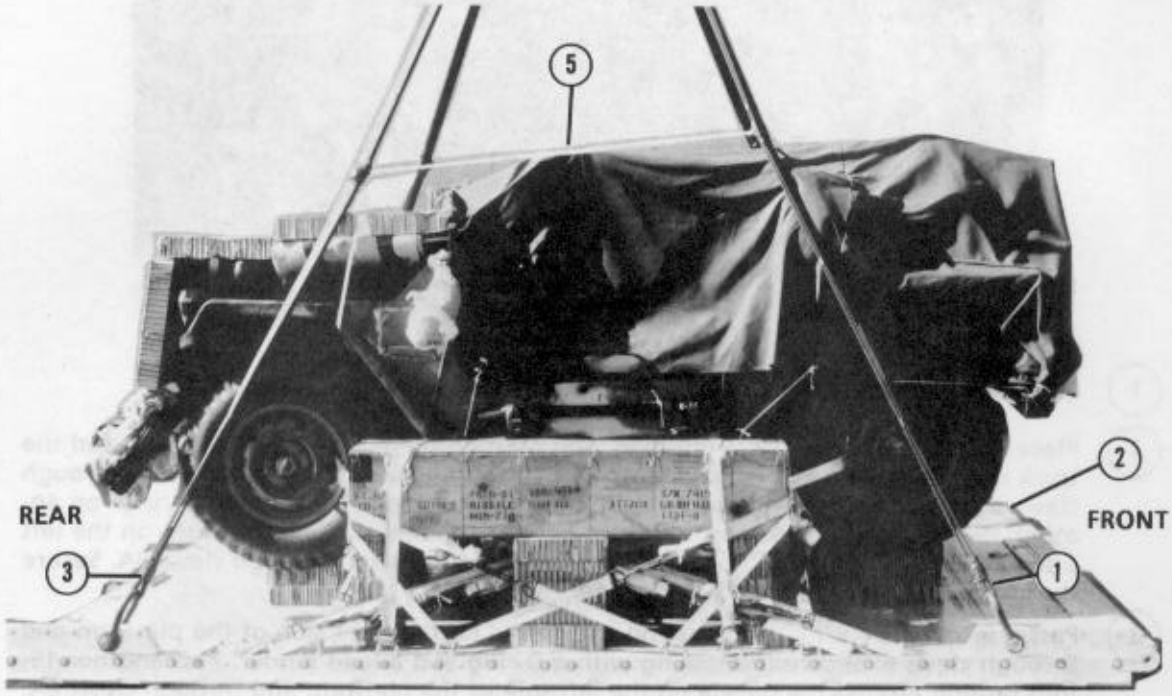


1. Set a boxed missile on the honeycomb stacks on each side of the platform.
2. Place two D-rings on a 15-foot lashing, and position them between the missile and the truck on the right side of the platform. Pass the lashing around the missile and through clevis 5. Secure the lashing with a D-ring and a load binder. Place two D-rings on another 15-foot lashing, and position them between the missile and the truck on the left side of the platform. Pass the lashing around the missile and through clevis 5A. Secure the lashing with a D-ring and a load binder.
3. Pass a second 15-foot lashing around the missile on the right side of the platform and through clevis 6. Secure the lashing with a D-ring and a load binder. Pass another 15-foot lashing around the missile on the left side of the platform and through clevis 6A. Secure the lashing with a D-ring and a load binder.
4. Tie one end of a 72-inch length of 1/2-inch tubular nylon webbing to both lashings on the front end of each missile. Tie the other end to the lashings on the rear end of each missile.
5. Pass a lashing through clevis 4 and through its own D-ring. Pull the lashing tight. Pass the lashing over the missile, through the front previously positioned D-ring (step 2), and under the truck. Run the lashing through the front previously positioned D-ring on the left side of the platform (step 2), and over the missile on the left side of the platform. Secure the lashing with a D-ring and a load binder to clevis 4A.
6. Pass a lashing through clevis 7 and through its own D-ring. Pull the lashing tight. Pass the lashing over the missile, through the rear previously positioned D-ring on the right side of the platform (step 2), and under the truck. Run the lashing through the rear previously positioned D-ring on the left side of the platform (step 2), and over the missile on the left side of the platform. Secure the lashing with a D-ring and a load binder to clevis 7A.

Figure 9-12. Two missiles stowed

9-9. Attaching Suspension Slings and Deadman's Tie

Using four 12-foot (2-loop), type XXVI nylon slings and four large clevises, install suspension slings as shown in Figure 9-13.

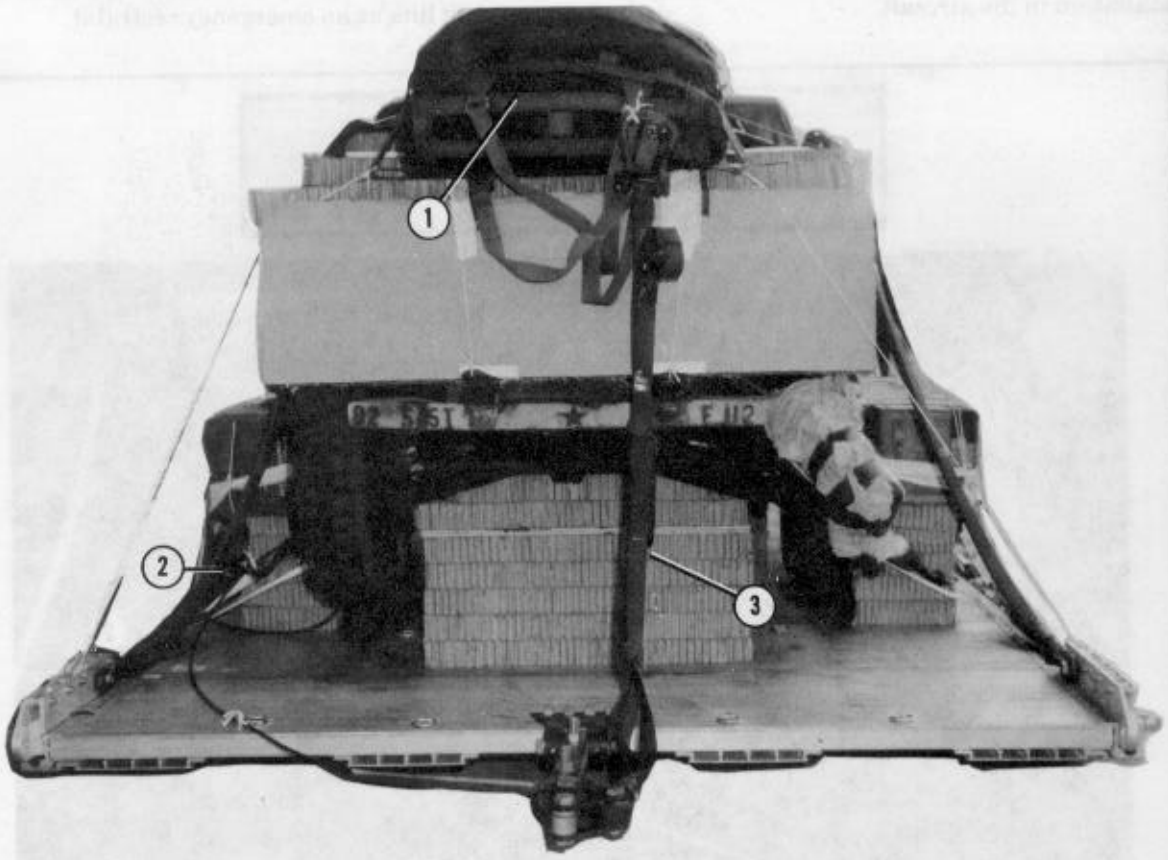


1. Attach a 12-foot (2-loop), type XXVI nylon sling to a large clevis. Bolt the clevis to the right front tandem link.
2. Repeat the same procedure as in step 1 for the left front tandem link.
3. Attach a 12-foot (2-loop), type XXVI nylon sling to a large clevis. Bolt the clevis to the right rear tandem link.
4. Repeat the same procedure as in step 3 for the left rear tandem link.
5. Install the deadman's tie as outlined in FM 10-500-2/TO 13C7-1-5 but with the tie flush with the top of the load.

Figure 9-13. Slings safetied

9-10. Stowing Cargo Parachutes and Installing Extraction System

Prepare and stow two G-11A parachutes or one G-11B cargo parachute as outlined in FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-14. Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-14.



1. Stow one G-11B cargo parachute.
2. Bolt the EFTC mounting bracket to the front mounting holes on the left side rail.
3. Install the EFTC extraction system according to FM10-500-2/TO 13C7-1-5 using a 9-foot (2-loop), type XXVI deployment line.

Figure 9-14. Cargo parachute stowed and EFTC extraction system installed

9-11. Installing Release System

Prepare and attach an M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-15.

9-12. Placing Extraction Parachute

Place the extraction parachute as described below.

a. C-130 Aircraft. Place an unreefed 15-foot cargo extraction parachute on the load for installation in the aircraft.

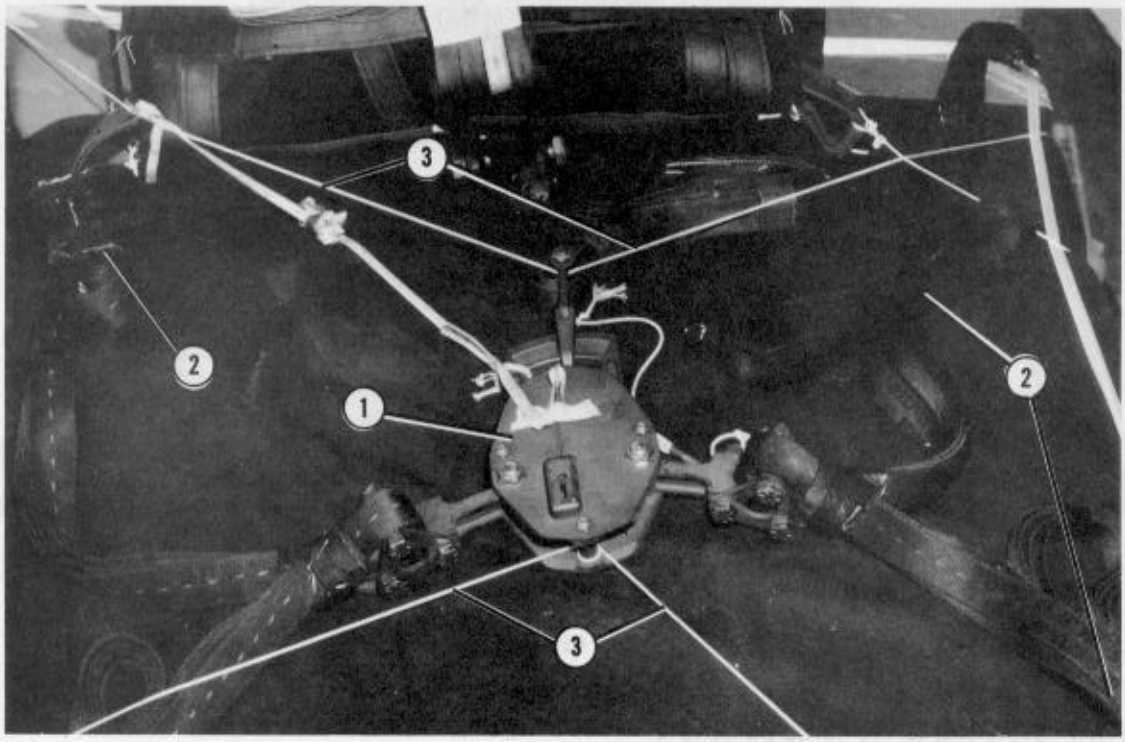
b. C-141 Aircraft. Place an unreefed 15-foot cargo extraction parachute with a 36-inch adapter web and a continuous 160-foot (1-loop), type XXVI nylon extraction line on the load for installation in the aircraft. The extraction line MUST be a continuous 160-foot line.

9-13. Installing Emergency Restraints

Install a medium clevis in the front hole of each tandem link as an emergency restraint.

CAUTION

THE M-1 CARGO PARACHUTE RELEASE MUST BE USED WITH THE G-11B CARGO PARACHUTE.



1. Center the M-1 cargo parachute release on top of the load, and attach the parachute riser and suspension slings.
2. Fold any excess parachute riser and suspension slings, and tape the folds in place.
3. Tie the release to each side of the vehicle with type III nylon cord.

Figure 9-15. M-1 cargo parachute release installed

9-14. Marking Rigged Load

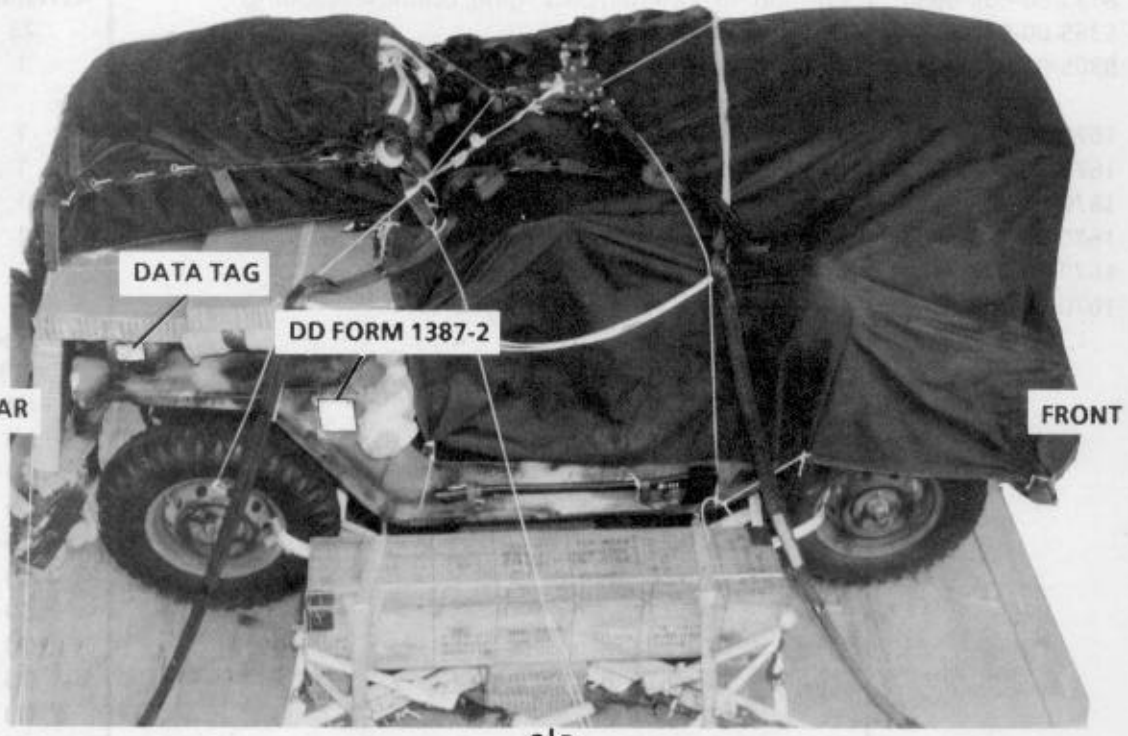
Mark the rigged load as outlined in FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-16. Complete DD Form 1387-2, and securely attach it to the load. Indicate on DD Form 1387-2 that the vehicle fuel tank and battery have been prepared according to AFR 71-4/ TM 38-250. If the load varies from that shown, the weight, CB, and parachute requirements must be recomputed.

9-15. Equipment Required

Use the equipment listed in Table 9-1 to rig this load.

CAUTION

MAKE THE FINAL RIGGER INSPECTION REQUIRED BY AFR 55-40/AR 59-4 BEFORE THE LOAD LEAVES THE RIGGING SITE.



C|B

RIGGED LOAD DATA

Weight: Load shown	4,850 pounds
Maximum allowed	5,300 pounds
Height	73 inches
Width	108 inches
Length	166 inches
Overhang: Rear (extraction system)	18 inches
CB (from front edge of platform)	75 inches

Figure 9-16. M151A2 truck with TOW weapon system rigged for low-velocity airdrop on a type V airdrop platform

Table 9-1. Equipment required for rigging the M151A2 truck with TOW weapon system for low-velocity airdrop on a type V platform

National Stock Number	Item	Quantity
1670-01-062-6312	Adapter web, 36-in (for 15-ft parachute)	1
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	
4030-00-678-8562	3/4-in (medium)	2
4030-00-090-5354	1-in (large)	5
8305-00-242-3593	Cloth, cotton duck, 60-in	8 yd
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5783	Coupling, airdrop extraction force transfer w 12-foot cable	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
5365-00-937-0147	D-ring, heavy-duty,10,000-lb	23
8305-00-958-3685	Felt, 1/2- by 6- by 6-in	1
	Line, extraction:	
1670-01-064-4452	60-ft (1-loop), type XXVI nylon webbing (for C-130) or	1
1670-00-856-0265	60-ft (1-loop), type X nylon webbing (for C-130)	1
1670-01-107-7652	160-ft (1-loop), type XXVI nylon webbing (for C-141)	1
1670-00-783-5988	Link assembly, type IV (for extraction line)	1
1670-00-217-2421	Link, L-bar type	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in	10 sheets
	4- by 12-in	(30)
	6- by 18-in	(6)
	12- by 6-in	(4)
	12- by 12-in	(2)
	12- by 17-in	(2)
	12- by 18-in	(8)
	12- by 20-in	(2)
	14- by 21-in	(2)
	14- by 28-in	(1)
	16- by 71-in	(1)
	17- by 61-in	(1)
	18- by 25-in	(3)
	19- by 61-in	(1)
	20- by 54-in	(1)
	36- by 18-in	(14)
	36- by 96-in	(1)
	44- by 6-in	(1)
	61- by 24-in	(1)
1670-01-183-2678	Panel, sling, extraction line	2
	Parachute:	
	Cargo:	
1670-00-269-1107	G-11A or	2
1670-01-016-7841	G-11B	1

Table 9-1. Equipment required for rigging the M151A2 truck with TOW weapon system for low-velocity airdrop on a type V platform (continued)

National Stock Number	Item	Quantity
	Cargo extraction:	
1670-00-052-1548	15-ft (unreefed)	1
	Platform, AD, type V 12-ft:	
	Bracket:	
1670-01-162-2375	Inside EFTA	1
1670-01-162-2374	Outside EFTA	1
1670-01-162-2385	Bumper, nose	1
1670-01-162-2372	Clevis, load tiedown	20
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link	4
5530-00-128-4981	Plywood, 3/4-in:	
	24- by 44-in	1
	36- by 18-in	2
	48- by 24-in	1
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop:	
1670-00-753-3788	3-ft (3-loop), type X nylon webbing or	1
1670-01-062-6301	3-ft (2-loop), type XXVI nylon webbing	1
1670-00-753-3631	9-ft (3-loop), type X nylon webbing or	5
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	5
1670-00-823-5041	12-ft (3-loop), type X nylon webbing or	4
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	4
1670-00-753-3794	20-ft (2-loop), type X nylon webbing or	2
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tiedown assembly, 15-ft, 10,000-lb	19
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
8305-00-082-5752	Nylon, tubular, 1/2-in, 1,000-lb, natural	As required
8305-00-263-3591	Nylon, type VIII, 3,600-lb	As required